MULTIMEDIA COLLEGE
JALAN GURNEY KIRI
54100 KUALA LUMPUR

SECOND, THIRD SEMESTER FINAL EXAMINATION, 2014/2015 SESSION

PSD2143 – INTRODUCTION TO PROGRAMMING II

DSEW-E-F-1/14, DSEW-E-F-2/14

13 FEBRUARY 2015
9.00 AM – 11.00 AM
(2 HOURS)

INSTRUCTIONS TO STUDENT

1. This Question paper consists of ELEVEN (11) printed pages only.

2. This question paper consists of THREE (3) sections.
   Section A: Answer ALL questions.
   Section B: Answer ALL questions.
   Section C: Answer ALL questions.

3. Please write all your answers in the Answer Booklet provided.
SECTION A       OBJECTIVE QUESTION (30 MARKS)
INSTRUCTION      ANSWER ALL QUESTIONS.

1. The first element in every array is the __________ element.
   A. null
   B. 1
   C. 0
   D. empty

2. Which definition tells the computer to reserve 12 elements for integer array C?
   A. c[ 12 ] int;
   B. int c [ 11 ];
   D. int c[ 12 ];

3. Which of the following is NOT a correct way to initialize an array?
   A. int n[ 5 ] = { 0, 7, 0, 3, 8, 2 };
   B. int n[] = { 0, 7, 0, 3, 8, 2 };
   C. int n[ 5 ] = { 7 };
   D. int n[ 5 ] = { 6, 6, 6 };

4. What’s wrong with this code?
   int[] = ( 1, 2, 3, 4, 5);
   A. The array size must be specified in the square brackets.
   B. The parentheses should be square brackets.
   C. The square brackets should be curly braces.
   D. The parentheses should be curly braces.

Continued…
5. If there are fewer initializers than elements in the array, the remaining elements are __________.
   A. deleted
   B. ignored
   C. initialized to empty
   D. initialized to zero

6. The following array definition
   ```c
   int n[ 5 ] = { 32, 27, 64, 18, 95, 14 };
   ```
   A. is correct
   B. causes a syntax error because there are only five initializers and six array elements.
   C. causes a logic error because there are only five elements but there are six initializers.
   D. causes a syntax error because there are six initializers but only five array elements.

7. The definition
   ```c
   char string1[] = "first";
   ```
   is equivalent to:
   A. ```character string1[]={'f', 'i', 'r', 's', 't', '\0'};``` 
   B. ```char string1 = { 'f', 'i', 'r', 's', 't', '\0' };``` 
   C. ```char string1[] = { 'f', 'i', 'r', 's', 't' };``` 
   D. ```char string1[] = { 'f', 'i', 'r', 's', 't', '\0' };``` 

8. A bubble sort of 1000 elements requires a maximum of __________ passes.
   A. 1001
   B. 1000
   C. 999
   D. 998

   Continued…
9. In order to calculate the __________ of an array of values, the array must be sorted.
   A. median
   B. mode
   C. mean
   D. all of the above

10. The _____ is the average value of a set of data items.
    A. mean
    B. median
    C. mode
    D. matrix

11. The __________ is the value that occurs most frequently in the data.
    A. mean
    B. median
    C. mode
    D. master

12. Pointers cannot be used to
    A. find the address of a variable in memory.
    B. reference values directly.
    C. simulate call-by-reference.
    D. manipulate dynamic data structures.

13. Three of the following expressions have the same value. Which of the following’s value is different from the others?
    A. *&Ptr
    B. &*Ptr
    C. *Ptr
    D. Ptr

Continued…
14. The __________, or address operator, is a unary operator that returns the address of its operand.
   A. &
   B. &&
   C. *
   D. **

15. The unary * and __________ are complements of one another.
   A. /
   B. ^
   C. &
   D. |

16. '\n' represents the integer value of
   A. the character n
   B. the string n
   C. newline
   D. nextline

17. Which character-handling library function converts lowercase letters to uppercase letters?
   A. lowertoupper
   B. isupper
   C. touppercase
   D. toupper

18. The general utilities library is __________.
   A. stdutil
   B. stdlibrary
   C. stdutility
   D. stdlib

Continued…
19. Which function does **NOT** read data from standard input?
   A. `scanf`
   B. `sscanf`
   C. `sprint`
   D. `getchar`

20. Function __________ inputs the next character from the standard input and returns it as an integer.
   A. `inputchr`
   B. `getchr`
   C. `inputchar`
   D. `getchar`

21. Function __________ prints the character equivalent of its integer argument.
   A. `putchar`
   B. `putch`
   C. `printchar`
   D. `printch`

22. Function `fgets` appends a __________ to its array target in memory.
   A. leading null character
   B. leading end-of-file character
   C. terminating null character
   D. terminating end-of-file character

23. Which function does **NOT** use either the standard input stream or the standard output stream?
   A. `puts`
   B. `getchar`
   C. `gettime`
   D. `scanf`

Continued…
24. Which is NOT a formatting capability of `printf`?
   A. left justification
   B. centering
   C. right justification
   D. aligning a column of numbers so that decimal points appear one above the other

25. A `printf` format control string must be enclosed in
   A. slashes
   B. `/* */`
   C. single quotes
   D. double quotes

26. The `%e` conversion specifier displays ________ values.
   A. long
   B. character
   C. integer
   D. floating-point

27. The `%g` conversion specifier indicates ________.
   A. color
   B. significant digits
   C. a global variable
   D. a hexadecimal integer

28. A floating-point value always contains a ________.
   A. decimal point
   B. comma
   C. plus sign
   D. `e` or `E`

Continued…
29. The floating-point conversion specifiers e and E display floating-point values in _________ notation.
   A. elliptical
   B. existential
   C. exponential
   D. exportable

30. Values printed with the conversion specifiers e, E and f are output with _________ digits of precision to the right of the decimal point by default.
   A. 0
   B. 1
   C. 5
   D. 6

Continued…
SECTION B : TRUE (T) OR FALSE (B) (10 MARKS)
INSTRUCTION : ANSWER ALL QUESTIONS.

1. Arrays are data structures consisting of related data items of the same type.

2. In array, the initialize of an array should not be more than the elements of the array.

3. Arrays and structures are static entities in that they remain the same size throughout program execution.

4. A bubble sort of 50 elements has 50 passes.

5. The string “string” actually occupies 7 characters in memory.

6. The character representation of the last character in memory of a string is ‘\0’.

7. A maximum of n passes are needed to sort the array, where n is the number of elements.

8. Calculating median normally requires the data to be sorted first.

9. Pointers are variables that contain memory addresses as their values.

10. The values 0 and 1 are the only values that can be assigned directly to a pointer variable.

11. +, \ and $ are all examples of string.

12. The number 4 typically takes up 8 bits when stored as a character on most of today’s computers.

13. The general utilities library is stdlibrary.

Continued…
14. When using functions from the general utilities library, its header file must be included.

15. Function getchar inputs the next character from the standard input and returns it as an integer.

16. \r moves the cursor to the beginning of the next line.

17. \v moves the cursor to the next vertical tab position.

18. A scan set is a set of characters enclosed in parentheses and preceded by a percent sign in the format control string.

19. Only uppercase letters can be used for symbolic constant names.

20. When using scanf, you must always precede with the & operator the name of each variable into which inputs are being placed.

Continued…
SECTION C : SUBJECTIVE QUESTIONS (50 MARKS)
INSTRUCTION : ANSWER ALL QUESTIONS.

Question 1
A small airline has just purchased a computer for its new automated reservations system. The president has asked you to program the new system. You’ll write a program to assign seats on each flight of the airline’s only plane (capacity: 10 seats).

Your program should display the following menu of alternatives:

a) If the person types 1, then your program should assign a seat in the first class section (seats 1–5). If the person types 2, then your program should assign a seat in the economy section (seats 6–10). Your program should then print a boarding pass indicating the person's seat number and whether it is in the first class or economy section of the plane.

b) Use a single-subscripted array to represent the seating chart of the plane. Initialize all the elements of the array to 0 to indicate that all seats are empty. As each seat is assigned, set the corresponding element of the array to 1 to indicate that the seat is no longer available.

c) Your program should, of course, never assign a seat that has already been assigned. When the first class section is full, your program should ask the person if it is acceptable to be placed in the economy section (and vice versa). If yes, then make the appropriate seat assignment. If no, then print the message "Next flight leaves in 3 hours." Please type 1 for "first class" Please type 2 for "economy"

(35 Marks)

Question 2
Write a program that inputs two strings that represent integers, converts the strings to integers and prints the greatest common divisor (GCD) of two values.

(15 Marks)

End of Page.